Oil Pressure Sensor Adapter Install Guide

For most Mazda and Ford 4 cylinder engines including 2.0L, 2.3L, and 2.5L engines

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WARNING:

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Tools required:

Vice
Drain pan
Hose cutters or sharp blade
9/16" or 15mm wrench
24mm wrench or adjustable wrench

Socket wrench:

10mm
14mm or 17mm depending on oil drain bolt
6mm hex key or 6mm allen
¼" hex key or ¼" allen
76mm 14 flute oil filter socket, 76mm 15 flute socket, or oil filter removal tool

Torque wrench:

9/16" or 15mm crowfoot wrench (or adjustable crowfoot wrench)
24mm crowfoot wrench (or adjustable crowfoot wrench)

This was preformed on an automatic Mazda5, you vehicle may differ slightly, but the install is generally the same.

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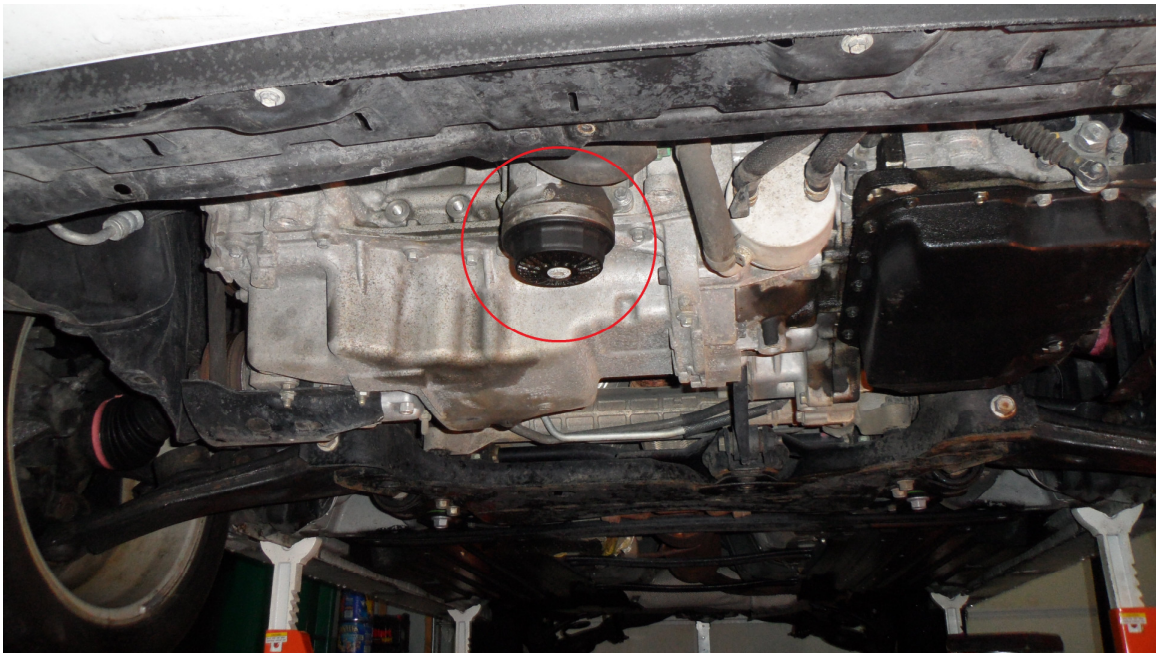
Begin by lifting the car, and supporting it on a lift, jack stands, or ramps.

Remove the under tray(10mm clips noted with arrows):

Mazda3, Mazdaspeed3, Mazda5, other models:

Locate the oil filter housing:



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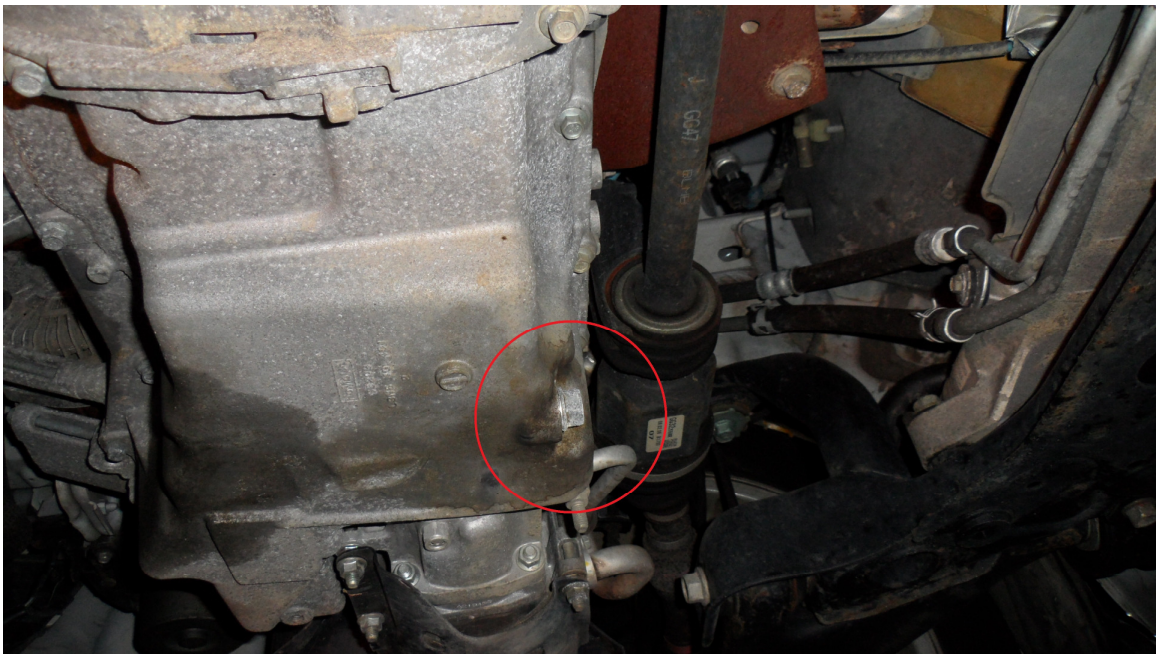
Note: The oil does not need to be fully drained, to install the OPSA, but we recommend doing so. Refer to your factory service manual, for proper oil draining and filling procedures. This guide does go over common Mazda oil drain and fill procedures, including torque specs.

With your drain pan ready, remove the 14mm or 17mm drain plug bolt:



If your car is equipped with a cartridge style filer, loosen the drain plug, do not remove(6mm hex bit or allen key):

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Loosen the oil filter cover, roughly 1 full turn(75.6mm 14 flute oil filter socket), remove the drain plug, let the oil drain, then remove the filter cover.

Remove the filter, dump excess oil from the filter cover, and clean the cover and drain plug. Remove the oil o-ring gaskets, and replace them with new ones provided with the new oil filter:

Put the new oil filter onto the cover:

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Reinstall the filter cover and drain plug, and torque them to these specs:
Oil filter cover: 30-35NM or 23-26lb-ft
Drain plug: 9-11NM or 80-97lb-in

If your car is equipped with a spin-on oil filter, remove the oil filter(76mm 15 flute oil filter socket, or oil filter removal tool). Check to make sure the oil filter gasket is not stuck to the housing. Reinstall new oil filter, check to see if new gasket is provided and in place on the filter, and tighten to 15-20MN/12-14lb-ft.

Reinstall the drain plug, with a new aluminum washer, and torque to these specs:
30-41NM or 23-30lb-ft

Locate the oil pressure switch, and remove the harness clip from the sensor:

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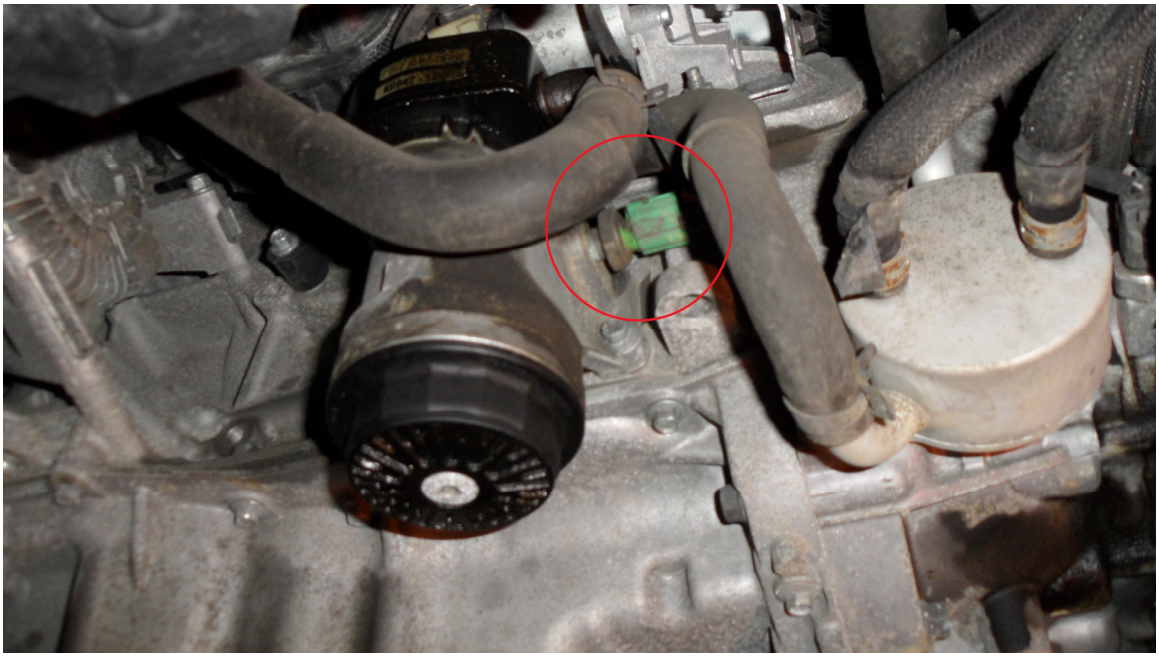

The harness clip is sometimes difficult to remove from the sensor. You will want to push down on the clip(red arrow), and slide the clip off of the sensor(you can use a 24mm wrench or adjustable wrench to turn the sensor slightly, for better access):

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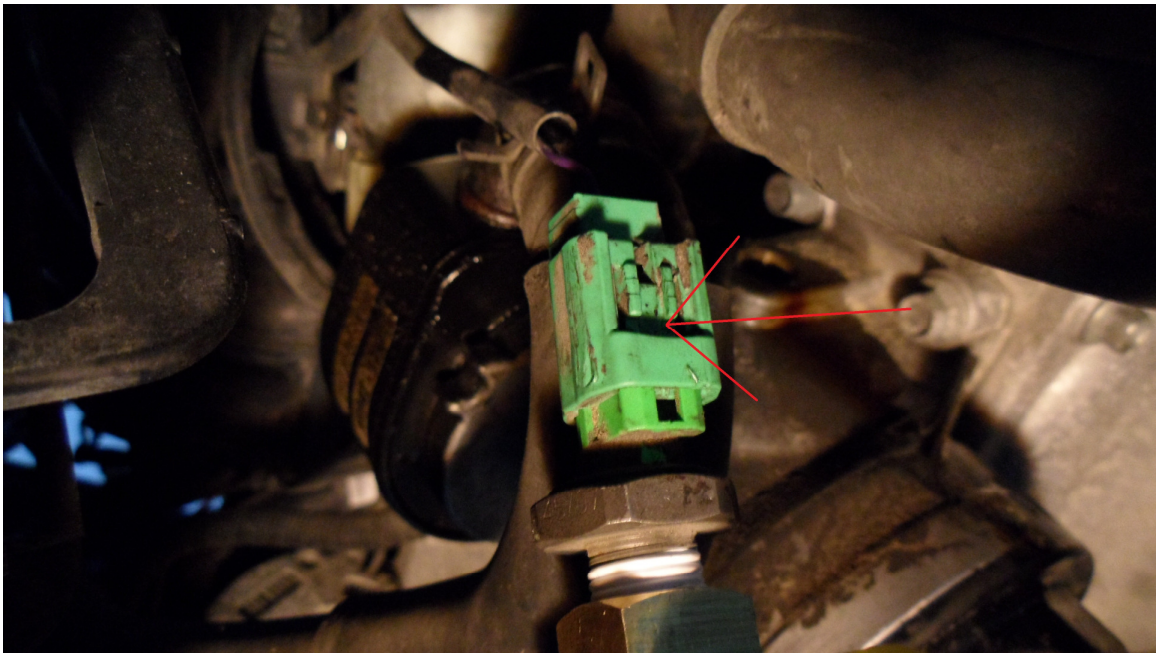

With the harness clip removed, remove the oil pressure switch from the filter housing(24mm wrench or adjustable wrench)

Now it's time to put the OPSA kit together. Using a vice, clamp the provided T-fitting. Begin by lightly screwing in one of the push-lock hose fittings, BY HAND, until it no longer turns.

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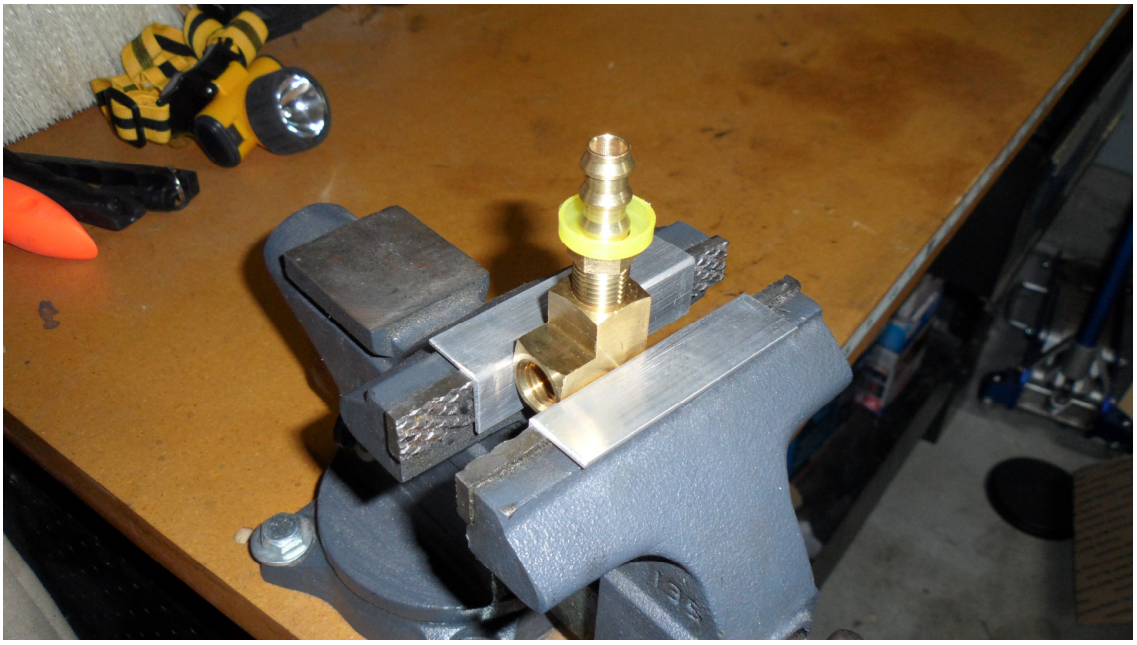
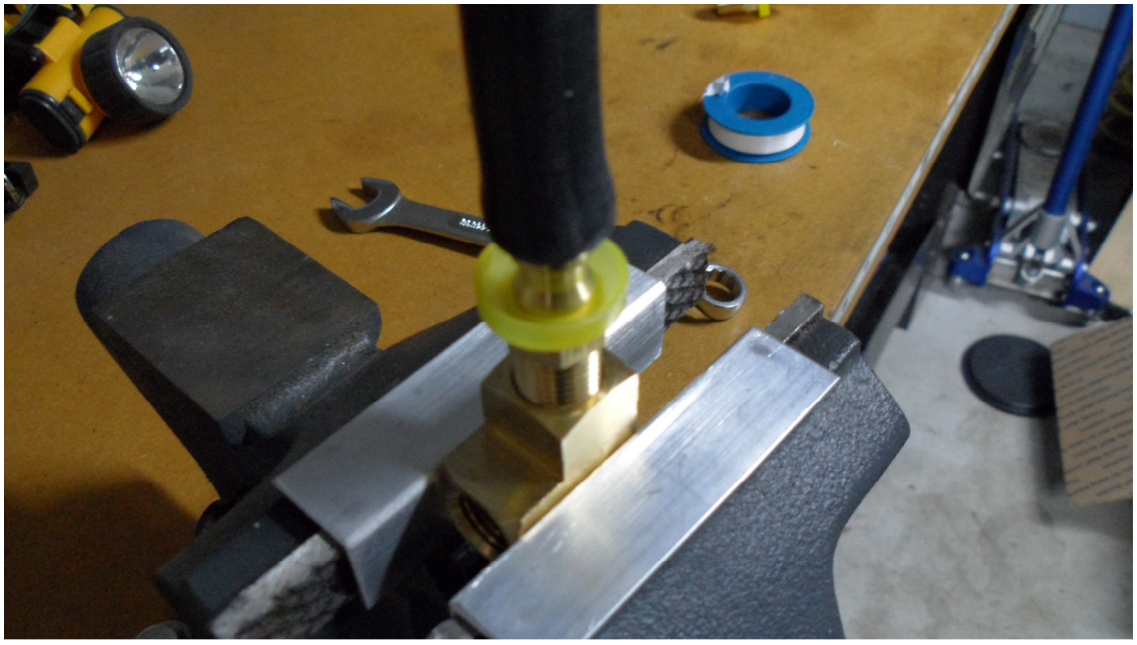


Grab some motor oil(we like to use brake parts cleaner for this) and very lightly lube up the barb end of the fitting. Slide the provided hose onto the hose fitting. This will take some force, you will want to get the hose onto the fitting, where the yellow plastic piece does not turn freely, and the plastic piece will need slight force to turn.



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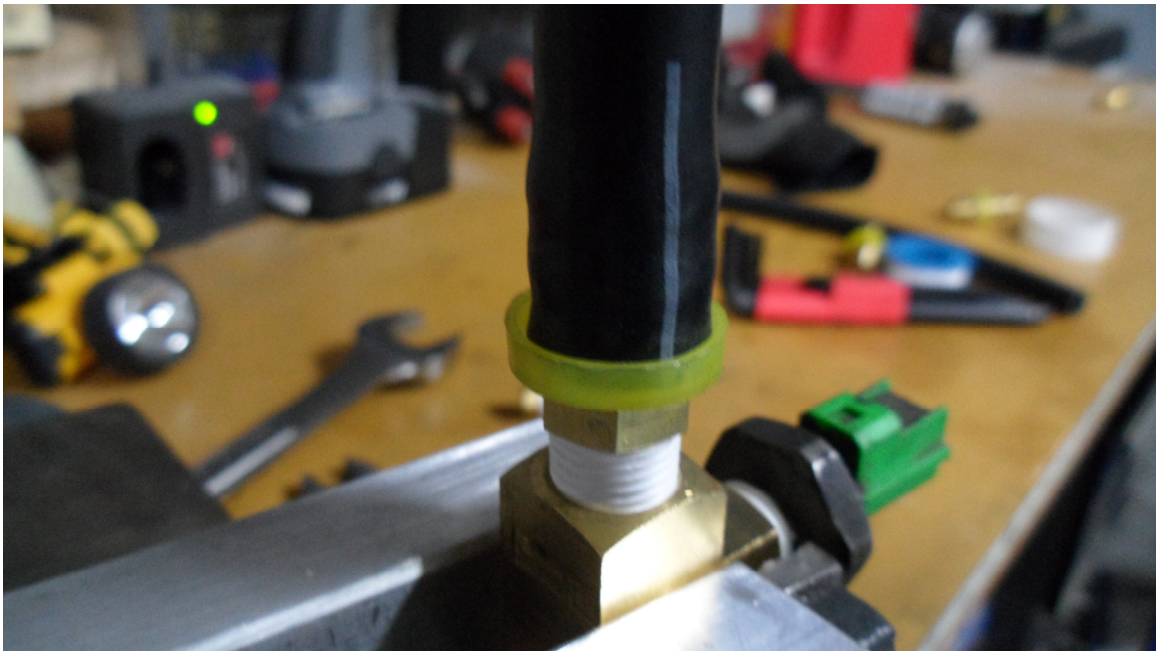
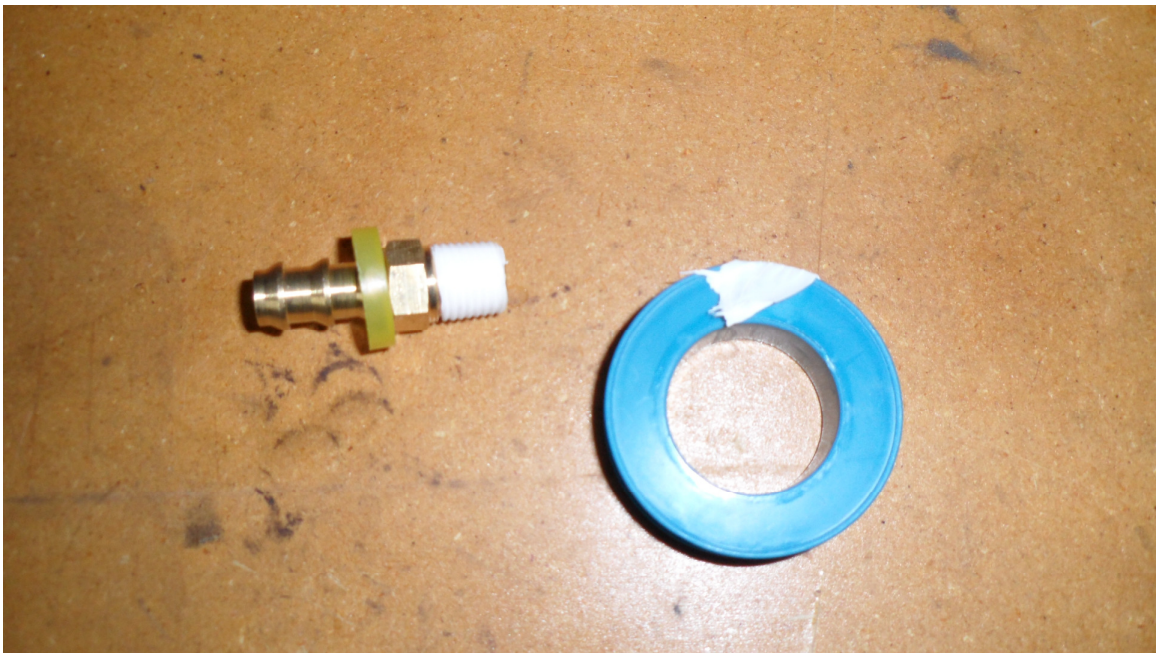


You can see above how the hose is fully seated onto the fitting.

Remove the push-lock hose fitting and hose from the T-fitting. Now take the other push-lock hose fitting, and wrap the threads with the provided Teflon tape:



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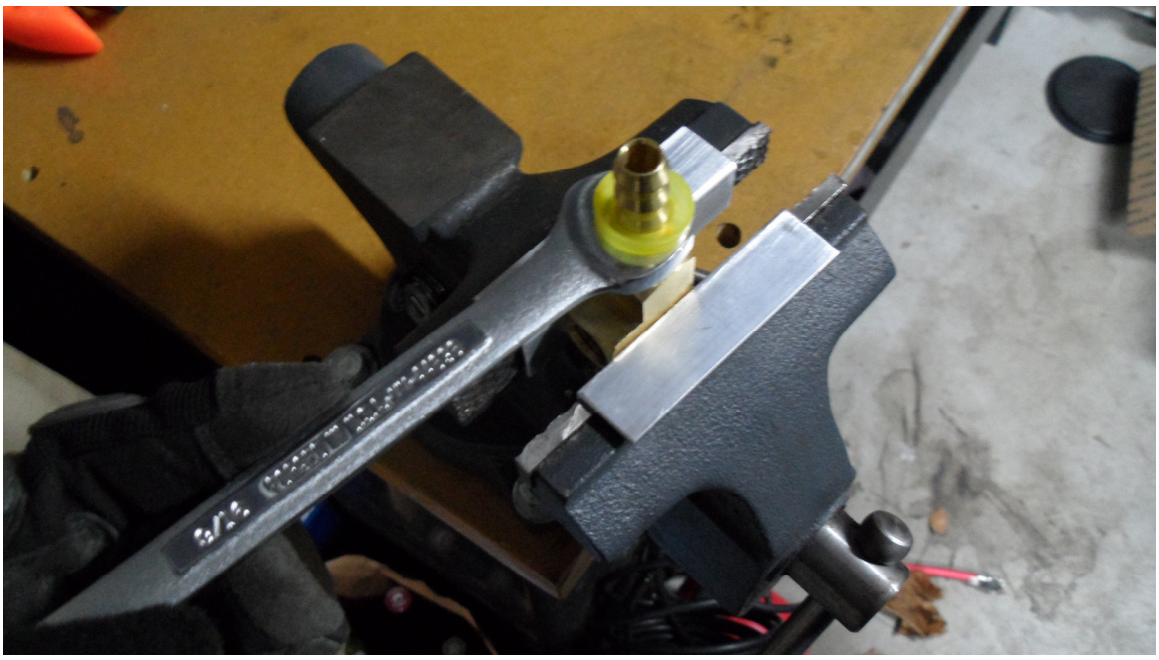
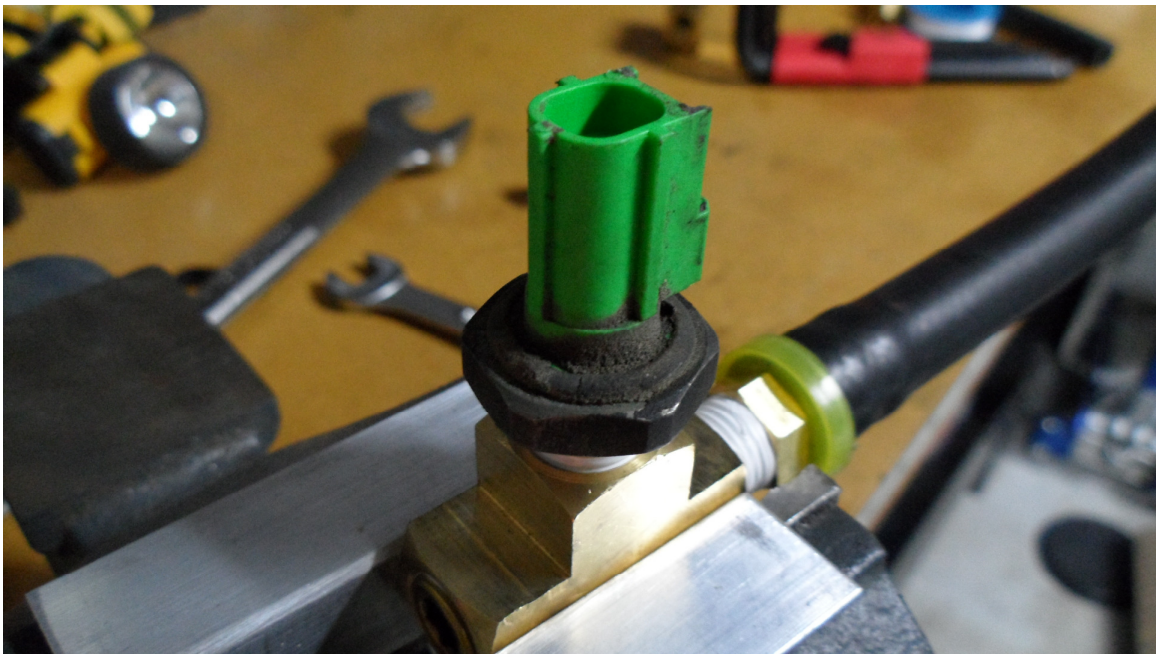
Insert the fitting with the Teflon tape into one of the ports on the T-fitting. Tighten until snug(roughly 15-20NM or 12-14lb-ft).



Clean the threads of the oil pressure switch and wrap them with Teflon tape. Insert the oil pressure switch into one of the ports of the T-fitting. Tighten until snug(roughly 15-20NM or 12-14lb-ft).



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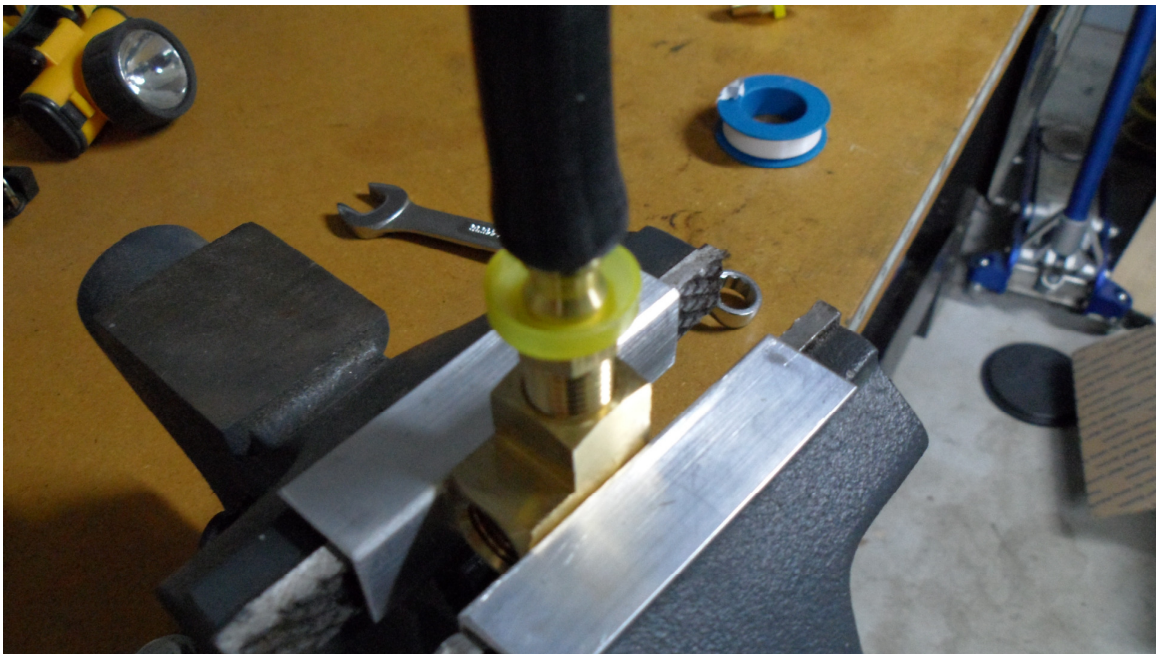
Take the hose with fitting attached, and lightly screw the fitting into the oil filter housing. Figure out where exactly you'd like the end of the hose and T-fitting to be located on the vehicle(keep in mind the wire for the oil pressure switch harness clip can only go a certain distance, you may need to extend the wire if you wish to locate the sensor far from the harness clip). Mark the hose at the length you'd prefer, and cut the hose using a hose cutter, or sharp blade(if cutting with a blade, you want the hose to be as even and straight as possible).

With the hose cut to length, take the hose and install it onto the push-lock hose fitting. Lightly screw the push-lock fitting into the T-fitting, as mentioned previously, to install the hose.



Now position the T-fitting in the vice to accept your oil pressure sensor. If your sensor is ¼" NPT, wrap the threads of the sensor with Teflon tape, and insert the sensor into the T-fitting. If your sensor is 1/8" NPT, wrap the provided reducer fitting threads with Teflon tape, and insert the reducer fitting into the T-fitting. Wrap the 1/8" NPT sensor threads with Teflon tape, and install into the reducer. Tighten the reducer and/or sensor until snug(roughly (15-20NM or 12-14lb-ft).

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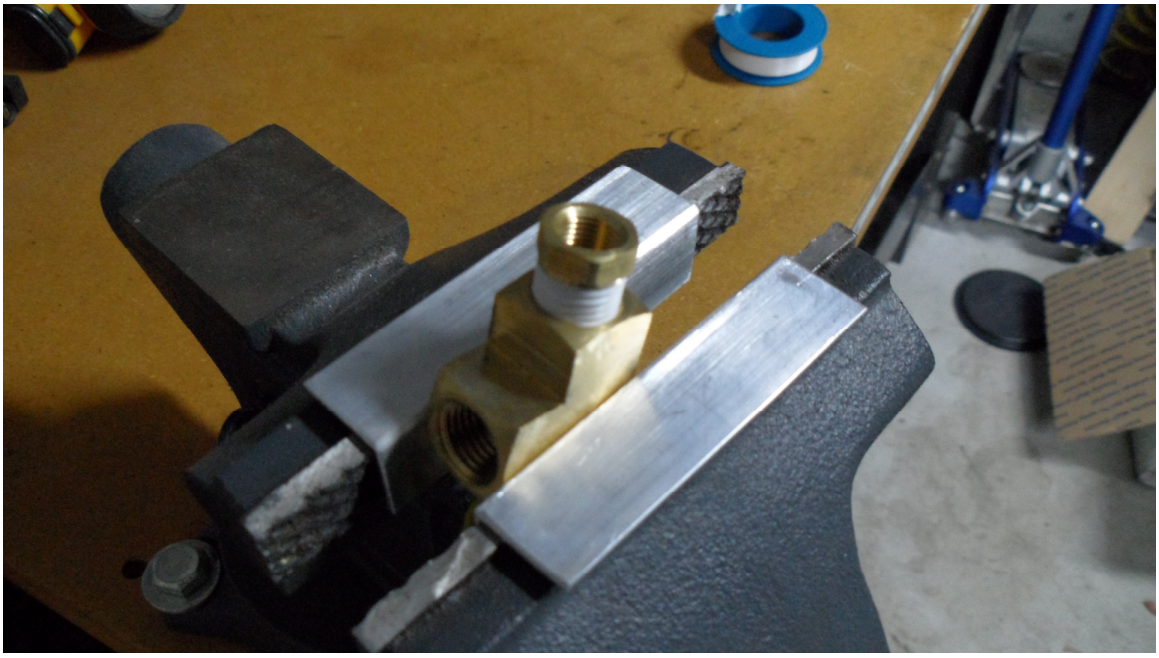
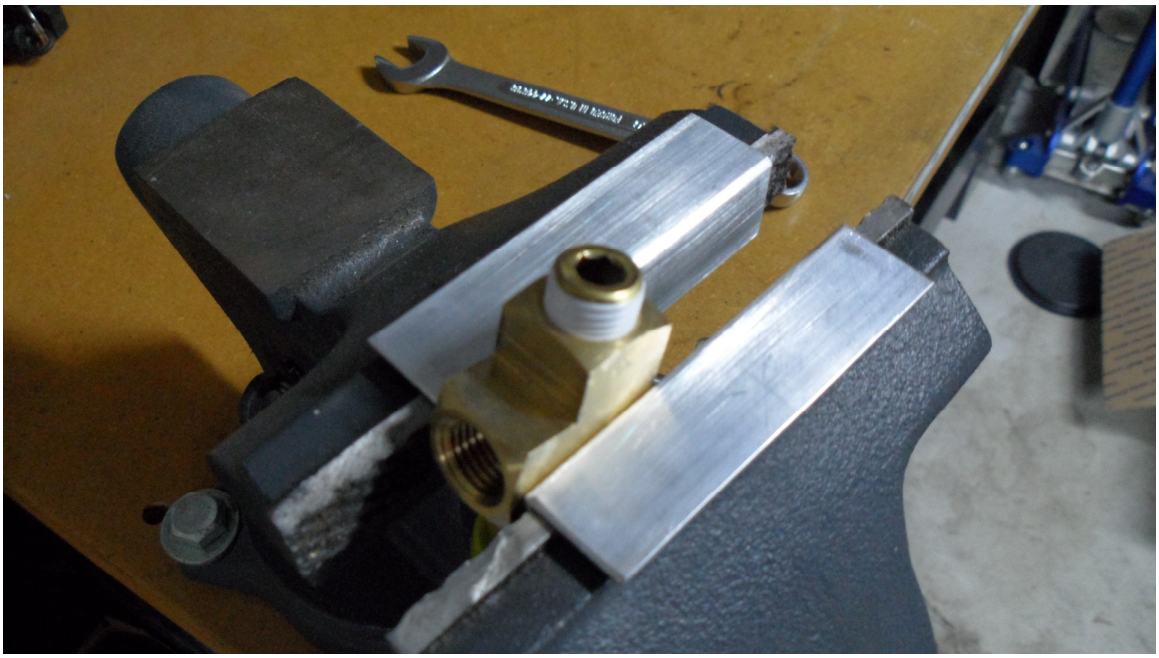


If you do not have a sensor at the time of the OPSA install, or are removing a sensor, you can use the screw plug. Wrap the threads with Teflon tape, and insert the plug into the T-fitting using a ¼" hex key socket, or ¼" allen, tighten until snug(roughly 15-20NM or 12-14lb-ft).



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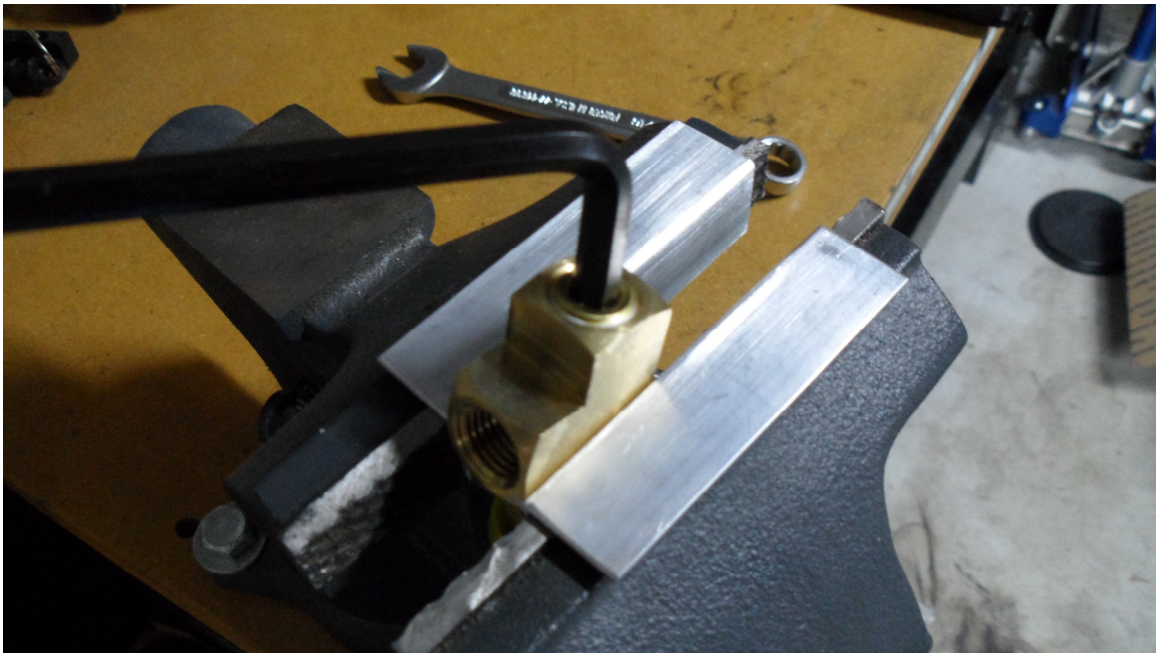
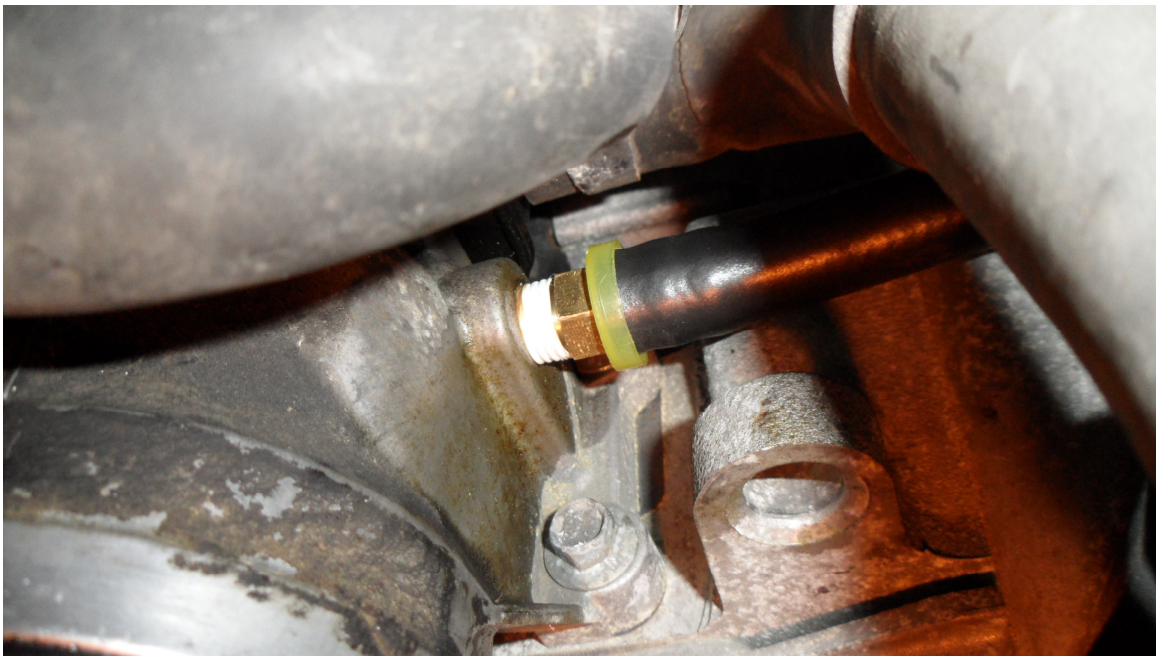


Wrap the exposed threads of the push-lock fitting with Teflon tape, and screw the assembly into the oil filter housing. Be cautious when inserting the fitting, as to not strip the threads, or rub the sensors in the T-fitting against any soft coolant hoses. Using a 9/16" crowfoot, or adjustable crowfoot wrench, and torque wrench, tighten the fitting in the oil filter housing to 15-20NM or 12-14lb-ft.



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Secure the T-fitting assembly and hose to a solid structure, using the provided zip ties:

Locate the oil cap on the valve cover, and fill the engine with the Manufacture's or engine builder's oil weight specification. Refer to the owner's manual or factory service manual for your vehicle's oil fill procedure and correct oil fill amount. Use a funnel to avoid spillage.

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Start the car for 10 seconds, and turn off the engine. Inspect the oil level, and check for leaks. Top off the oil, let the engine run up to operating temperatures, and check to see if your oil pressure gauge is functioning properly, and the dashboard oil light is not illuminated. Check again for leaks.

Congrats! You've install the Damond Motorsports OPSA. In a few days, check the oil level, and check the car for any oil leaks.

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